IN THE CLAIMS:

1. (Original) An MR pulse sequence designed to reduce induced RF power with multi-phase flip angles comprising:

an initial contrast preserving phase having a number of pulses with a relatively high flip angle that is relatively constant over the initial contrast preserving phase; and

a ramp down phase having a number of pulses with a flip angle less than that of the flip angle of the number of pulses in the initial contrast preserving phase and that decreases over time.

2. (Original) The pulse sequence of claim 1 wherein at least a first pulse in the pulse sequence is applied having a flip angle greater than that of the flip angle applied in the initial contrast preserving phase.

3. (Original) The pulse sequence of claim 1 wherein the flip angle of the number of pulses in the ramp down phase is decreased in a controlled manner.

4. (Original) The pulse sequence of claim 1 further comprising a relaxation prolongment phase having pulses with flip angles that increase in value.

5. (Original) The pulse sequence of claim 5 wherein the flip angle of the pulses in the relaxation prolongment phase is set not to exceed a given maximum.

6. (Original) The pulse sequence of claim 1 further comprising a relaxation prolongment phase having pulses with a flip angle set at a constant value.

7. (Original) The pulse sequence of claim 1 wherein the flip angles of the pulses in the initial contrast preserving phase are set at 130° after an initial refocusing pulse of 155°, and the flip angles of the ramp down phase monotonically decrease from 130° to 60° over approximately 20 RF pulses.

8. (Original) The pulse sequence of claim 1 wherein the initial contrast preserving phase is applied before an effective TE, and the ramp down phase is applied after the effective TE.

9. (Original) The pulse sequence of claim 1 wherein the pulses of the ramp down phase are reshaped with variable-rate selective excitation to reduce peak and average power.

10. (Original) The pulse sequence of claim 1 wherein the flip angles of the pulses of the ramp down phase decrease by at least one of:

a linear function;

an apodization window function; and

a monotonic function.

11. (Original) A method of reducing RF power induced in a patient in high field MR imaging comprising:

applying a set of RF pulses with relatively high flip angles to preserve T2 contrast before a given TE; and

after the given TE, applying a set of RF pulses with varying flip angles that are lower than that applied before the given TE.

12. (Previously Presented) The method of claim 11 wherein the RF pulses applied before the given TE have relatively fixed flip angles, and those applied after the given TE have flip angles that are ramped downwardly.

13. (Original) The method of claim 11 wherein the RF pulses having flip angles that are ramped downwardly in a controlled manner to decrease signal from water at a linear rate.

14. (Original) The method of claim 12 further comprising correcting signal variation due to varying the flip angles of the RF pulses prior to reconstructing an image.

15. (Original) The method of claim 12 wherein the set of RF pulses with varying flip angles includes n RF pulses, and further comprises applying another set of RF pulses after n RF pulses are applied to prolong relaxation.

16. (Previously Presented) The method of claim 15 wherein the another set of RF pulses applied to prolong relaxation has flip angles selected to maintain constant signal from a selected material for a remainder of an echo train.

17. (Original) The method of claim 16 wherein the another set of RF pulses applied to prolong relaxation has constant flip angles.

18. (Previously Presented) An MRI apparatus comprising:

a magnetic resonance imaging (MRI) system having a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field and an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images; and

a computer programmed to:

apply a set of high nutation RF pulses to establish a desired T2-weighted contrast at an effective echo time (TEeff);

apply a set of refocusing RF pulses having lower nutation than that of the high nutation RF pulses;

apply another set of RF pulses designed to prolong relaxation; and

acquire data throughout the RF pulse application.

19. (Original) The MRI apparatus of claim 19 wherein the another set of RF pulses has constant flip angle.

20. (Original) The MRI apparatus of claim 19 wherein the another set of RF pulses is selected to maintain constant signal from a desired substance.

21. (Original) The MRI apparatus of claim 19 further comprising a 3T magnet and an RF body coil.

22. (Original) The MRI apparatus of claim 19 wherein the high nutation RF pulses have a flip angle of approximately 130°, and the set of RF pulses applied after data acquisition has flip angles that are regularly ramped downwardly in a fast spin echo sequence having variable-rate selective excitation.

23. (Original) The MRI apparatus of claim 19 wherein the data acquired are corrected for the variation in signal strength due to application of a varying flip angle of the RF pulses.